

CVII. *An Account of the Gardenia: In a Letter to Philip Carteret Webb, Esq; F. R. S. from Daniel C. Solander, M. D.*

Dear Sir,

Read Dec. 23,
1762. **A**FTER begging your acceptance of
my very sincere thanks for the many
civilities you were pleased to honour me with, while
I was at your delightful retirement at *Busbridge*; I shall
with pleasure acquit my self of my promise to give you
the best *historical account* in my power of the GARDENIA Jasminoides, *together with some few observations on the same plant.*

The *Gardenia* is at present well known among the English gardeners by name of the *Cape Jasmine*, tho' it has been but a few years in this country. It was first brought here 1744 from the *Cape of Good Hope* by Captain *Hutchinson*, in the *Godolphin Indianaman*, and by him presented to *Richard Warner*, Esq; of *Woodford Row, Essex*; in whose garden it long remained without the least sign of vegetation; but at last, proved to be the most beautiful shrub that has been introduced among us for a long time. And indeed, the botanic world is as much indebted to the above-named gentleman, for his skill and care in the preservation of the plant, as for his generosity in communicating it to the public.

When this plant first shewed itself, it was thought a new and unknown one to the European botanists; and tho' it came to blossom freely, the Flowers unfortunately

fortunately proved double. For notwithstanding the Fructification is the only material thing in plants, whence they can be sufficiently known and described, yet double flowers are really a kind of monsters in the vegetable kingdom, as their principal parts are too much altered and distorted, for any thing to be determined from them with certainty. It therefore still remained a difficulty to ascertain what tribe this shrub belonged to; and the only way of forming any judgment, was considering all its parts accurately, comparing them with other known plants, and thus by analogy finding out its affinity, and thence its proper place in the vegetable system. At first, it was thought to be a species of *Jasmine*, * as I suppose from some distant likeness and the fragrancy of its flowers; but as it hardly agreed in any other particular, it was afterwards doubted, if it could properly be referred to that tribe, † and at last *John Ellis* Esq; F. R. S. declared this plant to be a distinct genus, and gave it the name of *Gardenia* ‡. This gentleman concluded that the plant then in question, must be very different from a *Jasmine*, as well from the unlikeness in its leaves and stipulas, as principally from the Seedvessel being placed below the receptacle of the flower; but not choosing to advance this upon his own authority, he sent an account of it with dried specimens to Doctor *Linnaeus* at *Upsal*, whose known extensive skill in every part of natural history has rendered his opinion among all the professors of that science to be of the best authority. The Doctor answered, that the situation of the Seedvessel, and the peculi-

* *Miller* Dict. and Fig. † *Ebret* Fig. ‡ *Phil. Transf.* 1760, p. 929.

arity of the Calyx, were sufficient to persuade him of its being a new genus; but as the Stamina must be uncertain in double flowers, he could not then undertake to determine its characters. However, soon afterwards Dr. *Linnæus* wrote word, that he had found a single flower of this same plant, among some specimens from the *East Indies*, and no longer scrupled to agree to Mr. *Ellis*'s determination of the *Gardenia*. There wanted nothing then, but an account of the Fruit; and especially the number of Seeds; and Mr. *Ellis*, who was well acquainted with observations on the most minute parts of nature soon discovered, that the Seedvessel contained rudiments of many Seeds; tho', it seems, the veracity of this particular has been much questioned; which, no doubt, has arose from the imperfect state, that all fruits and seeds commonly appear in, after double flowers, as in the present case. But it was my good fortune, while I was at your most agreeable seat at *Buxbridge*, and where you indulged me with a sight of your curious collections of dried Plants, to discover a specimen of this shrub in perfect Fruit, gathered by Mr. *Cunningham*, in the *East Indies*, where that gentleman travelled for discovery of natural curiosities. Upon my declaring this, you was so obliging, as to permit my dissecting the fruit, for examination; when you remember, Sir, we had the satisfaction to find, that the generical characters of the *Gardenia* given by Mr. *Ellis* in the *Philosophical Transactions*, vol. LI. p. 929. were very compleat. I will only beg leave to add a few particulars, that could not be seen in an imperfect or immature fruit.

The *Seed-vessel*, when ripe, is egg-shaped, outwardly ribbed from the descending wings of the flower

flower-cup, and within divided into two cells by a thin membranaceous partition. The Seeds are many, at least more than fifty in each cell, compressed, and surrounded with a mucilaginous substance.

The *mucilage* here mentioned, was so little hardened in the fruit I examined, that the seeds themselves were quite soft, and inclining to be moist.

Recollecting that Dr. *Plukenet* had figured many of Mr. *Cunningham*'s plants, I had recourse to his *Gazaphylacium*, and there found an engraving of this plant, plate 448. n. 4, and that it was twice mentioned in his *Amaltheum*, pages 29, 212.

From the observations, which Dr. *Plukenet* *, Mr. *Petiver* and Mr. *Ray* † have received from Mr. *Cunningham*, I learned that the Chinese use the seeds of *Gardenia jasminoides* as a scarlet dye; and as the mucilaginous substance in which the seeds are involved, seems to be very copious and rich of colour, I imagine it must be worth enquiry, whether this shrub may not be found, and transported to such of the British colonies, where it might be propagated; and perhaps become one of the most useful plants, as it is now one of the most beautiful.

I have tryed these seeds in water, spirits and other liquors, and allways found them tinge the menstruum yellow, notwithstanding they have been gathered near four score years.

* Semina tinctoribus inferviunt, iis enim ab indigenis Sinenibus optime tingitur nobilis ille color, quem Escarlatinum nostrates vocant, ut nos monuit vir multiplicis industriae, atque indefessi laboris hac in parte D. Jacobus Cunninghamus. *Plukenet Amaltheum*. p. 29.

† Hujus fructus celebris est et in frequenti usu apud Chinenses ad colorem coccineum, seu scarlatinum tingendum. *Ray, Hist. III. p. 233.*

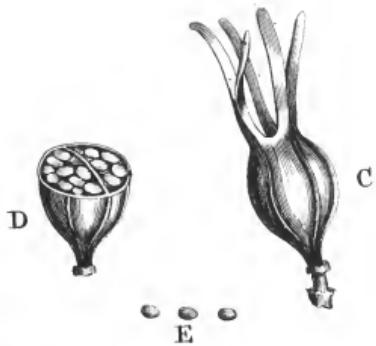
To confirm myself in the discovery I had made, I obtained leave to look over the collections of dried plants at the *British Museum*, where many are preserved, that can be met with no where else, and by the assistance of the assiduous Mr. *Empson*, I found several good specimens of this valuable shrub, viz. in *Hort. Sicc.* XX. p. 25. 86. XCIV. p. 130, CCXLVII. p. 25, CCLXXXIX. p. 33. and CCCXXXI. p. 90, all gathered in the *East Indies* by Mr. *Cunningham*. The greater part of these specimens were in fruit, but one or two with perfect blossoms, and they were so exactly corresponding with Mr. *Ellis's* account, that I can find nothing to alter or add to it.

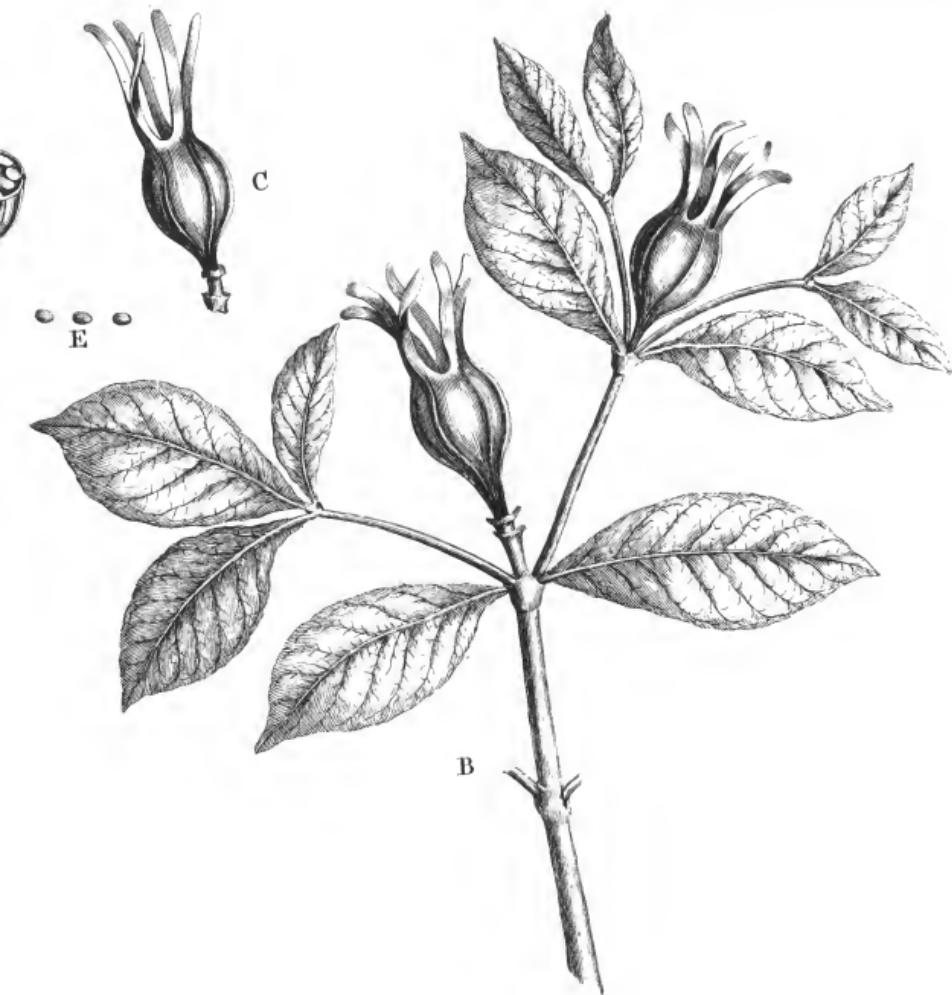
There is however one thing I will not omit mentioning, as it may in some measure account for the unequal number of the divisions in the double blossoms; it is, that some of the specimens at the British Museum have their calyx divided into five, and others into six segments or wings, which shew, that the inequality is not altogether peculiar to the double flowers; and I have had *drawings* made from the *best samples* I could find in the collection, which are here annexed, the better to explain what I have said; where Tab. XX. Fig. A. shews a specimen with a *single blossom*; Fig. B. another with the *fruit*, both gathered in *China* by Mr. *Cunningham*; Fig. C. a *Capful* with only *five divisions* in the *Calyx* (which I suppose to be the natural number) taken from another dried specimen of the same gentleman's; Fig. D. a *transverse section* of the same *Capful*, to shew the *two cells*, with *many Seeds* in them; and Fig. E. represents the *Seeds* of their natural size.

If it will not too much trespass upon your patience, I shall beg leave to insert what is said relative to the names



A. *GARDENIA* with a Single flower, drawn from a dried Specimen in the Br.
C. a Capsule with five divisions in the Calyx. D The same cut across to shew the





dried Specimen in the British Museum. B. The same in Fruit.
— same cut across to shew the Seeds lying in the two loculaments. E. The Seeds.

J. Mynde sc.

names of this shrub, by such Botanical writers as I have had an opportunity to consult; and, as I have found it spoke of but by very few, I hope you will so much the readier excuse me. The first author that gives us an account of this plant is Dr. *Plukenet*, after him Mr. *Petiver* and *Ray*, but none of them gave us a true Botanical name or description, much less referred it to its proper class, order or genus; and notwithstanding so many good specimens were preserved in the Botanical collections of Sir *Hans Sloane*, now in the *British Museum*, it was taken no farther notice of, before the ingenious Mr. *Miller* of *Chelsea* gave us the description and drawing in his *Gardener's Dictionary* and *Figures of Plants*, from the plant he saw at Mr. *Warner's* garden. Mr. *Ebret* soon afterwards published a most elegant figure of it, and Mr. *Ellis* at last compleated the Botanical description, in the *Philosophical Transactions*.

Those gentlemen have mentioned this shrub, under the following names:

Arbuscula Sinensis, *myrti majoris folio*, *vasculo seminali hexagono*, *ad singulos angulos alis foliaceis munito*, *quaē porrectae vasculi coronam efformant*, *Umki Sinensis dicta*. *Pluken. Amalb. p. 29.*

Umki, alias *Umuy*; *cujus fructum ad colorem escarlatinum tingendum inservit*; *florem fert rosaceum*, *album*, *hexapetalum*. *Pluken. Amalb. p. 212. tab. 448. f. 4.*

Frutex cynosbati fructu alato, tinctorio, barbulis longioribus coronato. *Petiv. Mus. p. 498. Ray. Hist. III. p. 233.*

Jasminum foliis lanceolatis oppositis integerrimis, *calycibus acutioribus*. *Mill. Diet. n. 7. Mill. fig. 180.*

Jasminum,

Jasminum? ramo uniflore pleno, petalis coriaceis.
Ebret. fig.

Gardenia jasminoides. *Ellis, Philos. Trans. 1760.*
p. 929. Tab. 23.

One circumstance still remains to be enquired into, namely, the native place of this shrub. That it grows spontaneously in *China* and the neighbouring countries, I do not in the least doubt, because Dr. *Linnæus* has had his specimen from thence, and Mr. *Cunningham* tells us, in his time, it was found there in such plenty, that they could collect and use its seeds for dying. Neither do I doubt that Capt. *Hutchinson* procured the plant he brought over from the *Cape of Good Hope*, especially as there are *specimens* of it with *double blossoms* among the curious plants that were brought over from that place to Mr. *Desmarests*, now in the British Museum, *Hort. Sicc. CCLXI. p. 30.* But as those have double flowers, and having never heard of any with single blossoms being gathered in that country, I can scarce believe it is an indigenous plant there, but rather imagine that it must have been *brought thither* from the *East Indies*, either by accident or for their gardens.

I must once more take the liberty to repeat, that as this plant may probably be of real benefit by improving the art of dying, I would beg leave therefore to recommend it to you, and all other such public-spirited gentlemen, to use your best endeavours, for discovering and bringing over from the *East Indies* some single blossomed plants, or the seeds, of the *Gardenia*; and afterwards to consider of the properest place for planting and cultivating them, for so valuable an end. And if it succeeds, I shall esteem it a particular

particular honour to have proposed it to you, as I shall be proud of every opportunity to approve myself,

Dear Sir,

Your most obedient

London, Dec. 14, 1762.

humble servant

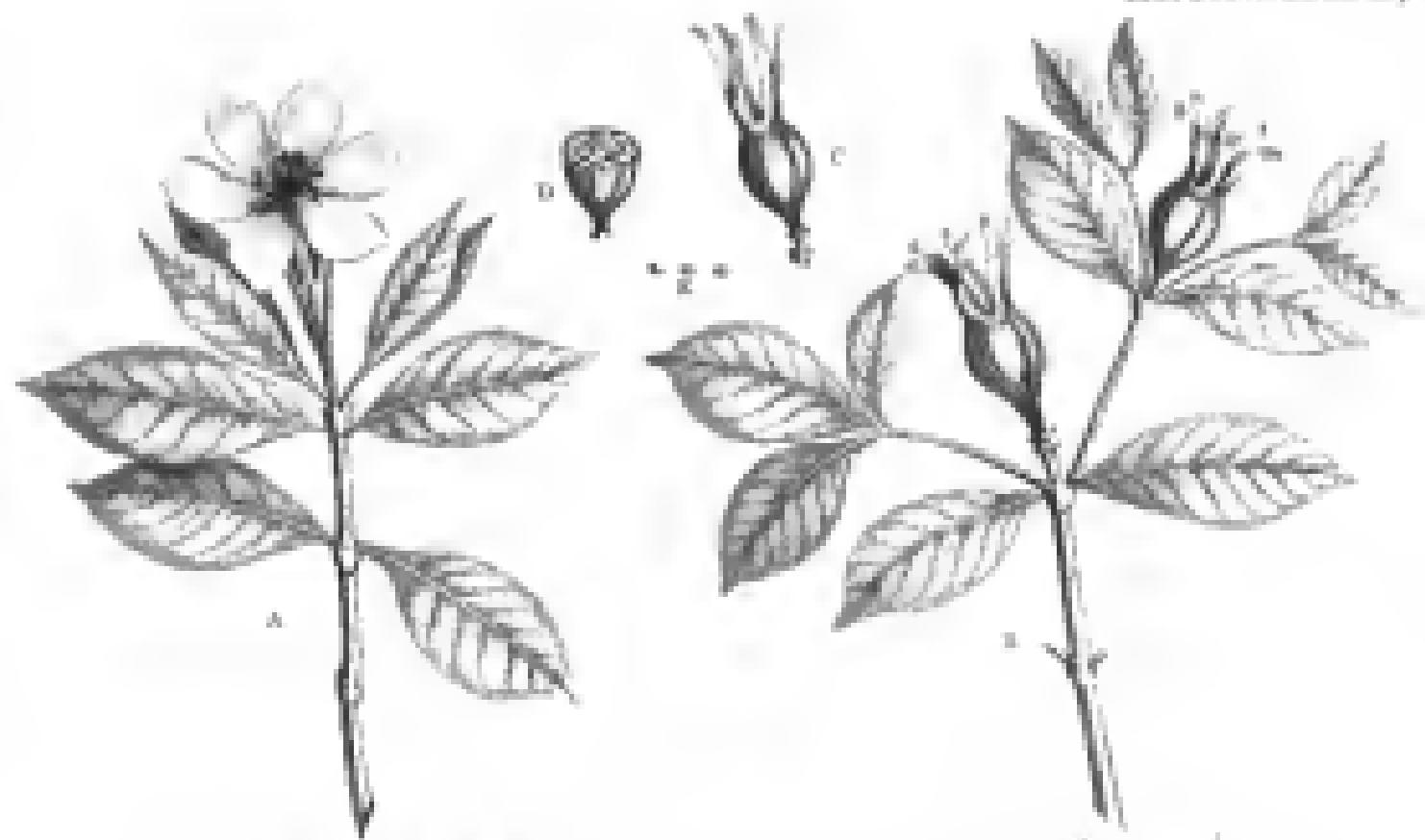
Daniel C. Solander.

CVII. *An Account of the Male and Female Cochineal Insects, that breed on the Cactus Opuntia, or Indian Fig, in South Carolina and Georgia: In a Letter from John Ellis, Esq; to Peter Wych, Esq;*

S I R,

Read Dec. 23, 1762. **F**INDING the natural history of Co- chineal still defective, (notwithstanding the diligent inquiries that have been made by many curious persons into the nature and oeconomy of this valuable insect) for want of a description of the Male, I took the first opportunity of endeavouring to illustrate it.

Hearing then that this insect bred in great abundance on the Cactus Opuntia of Linnaeus's Species Plantarum, p. 468. in South Carolina and Georgia, where it is a native and grows in great plenty, as well as on the Cactus Coccinellifer of the same author, which grows in Mexico, and has been for these many years introduced



A. GARCINIA, with a single flower shown from a dried specimen on the right. B. The same on a larger scale, and four diagrams on the right. The leaves are arranged to show the buds springing on the veins, and alternate with the flowers.

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